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January 10, 1997

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Room 222
Washington, D.C. 20554

In re: Reply Comments MM Docket No. 87-268

Dear Mr. Caton

On behalf of Channel 3 of Corpus Christi, Inc. (Television Station KIII, Corpus Christi, Texas), Louisiana Television Broadcasting Corp (Television Station WBRZ, Baton Rouge, Louisiana) and Mobile Video Tapes, Inc. (Television Station KRGV, Weslaco, Texas), there are herewith transmitted an original and nine copies of Reply Comments pertaining to the DTV rule making proceeding (MM Docket Number 87-268).

Very truly yours,

Robert B. Jacobi

Enclosures

BEFORE THE

Federal Communications Commission

In the Matter of	)
	)
Advanced Television Systems	)
and Their Impact upon the	) MM Docket N. 87-268
Existing Television Broadcast	)
Service	)

REPLY COMMENTS OF CHANNEL 3 OF CORPUS CHRISTI, INC.
LOUISIANA TELEVISION BROADCASTING CORP AND MOBILE VIDEO TAPES, INC.

Channel 3 of Corpus Christi, Inc., licensee of television Station KIII (Channel 3), Corpus Christi, Texas; Louisiana Television Broadcasting Corp., licensee of television Station WBRZ (Channel 2) Baton Rouge, LA; and Mobile Video Tapes, Inc., licensee of television Station KRGV (Channel 5) Weslaco, TX (hereinafter AP (collectively, the Aggrieved Parties)) hereby through counsel submit Reply Comments in the above- referenced proceeding (hereinafter NPRM).

1. AP supports the position of The Broadcasters Caucus (hereinafter Caucus) which advocates the need for the preservation of additional spectrum for broadcast use. In the event, however, that the Commission does not accept the Caucus position in its entirety as to the need for additional spectrum but concludes that some additional portion of spectrum for broadcast use is warranted, AP urges that the Commission (a) include as a part of the "Core Spectrum) Channels 2 through 6 and (b) that those stations now operating on NTSC Channels 2 through 6 be permitted the option of returning to such channels for DTV operations-consistent with the Commission tentative proposal set forth in paragraph 36 of the NPRM (See also, paragraph 22 of the NPRM);

2. The NPRM (paragraph 19) concludes that signals in the lower VHF band (Channels 2 through 6) are more susceptible to degradation and, consequently, less desirable for broadcasting. Assuming arguendo that VHF low band signals are more susceptible to degradation, the conclusion does not follow that the DTV signal is unsatisfactory. Indeed, the Charlotte report does not conclude that low band VHF is unsuitable for DTV. Comments filed by the engineering firm of duTreil, Lundin & Rackley demonstrate that such a conclusion is entirely unwarranted; contrary to this conclusion, the field tests conducted at Charlotte demonstrated that satisfactory DTV low band VHF reception occurred at more than twice the satisfactory NTSC locations and that low band DTV service is substantially better than NTSC even at the low power level used. See duTreil, Lundin & Rackley Comments, pages 6-7 appended hereto (Appendix A) and Technical Statement appended hereto (Appendix B). In short, irrespective of the low band being more suspectable to degradation, low band use is satisfactory, indeed better than existing NTSC operations;

3. The Commission's approach for developing a DTV Table of Allotments is based upon achieving replication of the coverage area of existing stations (See NPRM, Paragraph 82). To achieve this goal, the three AP stations would require (respectively) the following DTV power (as specified in the NPRM, Appendix B):

KIII - 4648kw (proposed DTV Channel 43);
KRGV- 4215kw (proposed DTV Channel 20);
WBRZ - 3652kw (proposed DTV Channel 47).

To achieve the power necessary to replicate existing service, KIII would require a transmitter with a peak power rating of 875 KW, KRGV a transmitter with a peak power rating of 800 KW and WBRZ a transmitter with a peak power rating of 700 KW (See Technical Statement, Appendix B). Pragmatically, construction and operating costs for such transmitters in

small markets (or, for that matter, in any market) is simply unrealistic.[1/] Moreover, aside from the costs, such high powered transmitters could pose serious environmental and health problems.

4. AP operation on the respective proposed UHF DTV allotments will result in a substantial area coverage loss. Operation with a typical transmitter power of 120kw (which would be the most practical) will result in existing coverage area losses ranging from 28% to 36%. Even assuming operation with a 240 KW transmitter (which also is impractical for smaller market stations), existing coverage area losses would continue to be unacceptable ranging from 19% to 28% (See Technical Statement, Appendix B). Indeed, all low band VHF NTSC stations (approximately 260) having proposed DTV UHF frequencies will suffer similar coverage losses - potentially affecting loss of service to millions of viewers. Absent the use of low band VHF channels, replication of the coverage area for these low band stations will not be achieved. Surely, it is not in the public interest to substitute a new "free" over-the-air service which will deprive a substantial number of viewers of service previously available;

5. There is no "downside" to the inclusion of Channels 2 through 6 as part of the "Core Spectrum". Low band VHF channels are satisfactory for DTV operation. Use of these channels by existing licensees comports with the Commission's approach to achieve replication and constitutes the only meaningful way to achieve replication. Prospective UHF DTV allotments now proposed for low band VHF stations can be effectively utilized for broadcast use elsewhere.[2/] The retention of low band VHF spectrum for broadcast use will enable broadcasters

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1/ Capital and operating costs associated with such high performance transmitters (assuming that such transmitter can be manufactured and utilized) would be unreasonably excessive (see Technical Statement (Appendix B) and Comments of Citadel Communications Co., LTD., on the Sixth Further Notice of Proposed Rule Making, Technical Statement (Ex. 1) and Declaration of Philip J. Lombardo (Ex. 2).

2/ In terms of a prospective choice as to which portion of the spectrum should be retained for broadcast use, it is to be noted that the Commission has reached a tentative conclusion that the upper UHF frequencies are less desirable for broadcast purposes (see NPRM, paragraphs 19 and 35). Moreover, from the FCC prospective, a later auction (as advocated by the Caucus) of contiguous blocks (i.e. channels 60 - 69 or 52 - 69) holds the greatest economic potential.

to provide a quality DTV signal without coverage loss. Conversely, loss of the low band VHF channels will be devastating, both to licensees and the public.

Respectfully submitted,

CHANNEL 3 OF CORPUS CHRISTI, INC.
LOUISIANA TELEVISION
BROADCASTING CORP.
MOBILE VIDEO TAPES, INC.

By: 
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Dated: January 10, 1997

Appendix A

COMMENTS OF
duTreil, Lundin & Rackley

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, DC 20554

In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service	))))	MM Docket No. 87-268

Comments of of du Treil, Lundin & Rackley, Inc. in
Sixth Further Notice of Proposed Rule Making

These comments are submitted on behalf of the firm of du Treil, Lundin and Rackley, Inc. (dLR). This firm and its predecessors have been practicing consulting communications engineering before the Federal Communications Commission (FCC) and industry for more than 50 years. These comments of dLR concern the FCC's Sixth Further Notice of Proposed Rule Making (FNPRM) in MM Docket No. 87-268. This proceeding concerns advanced television systems and their impact upon the existing television broadcast service. In the FNPRM the FCC has proposed an allotment table for digital television (DTV) assignments, with associated effective radiated powers (ERP) to replicate existing coverage. The FNPRM also proposes to reclaim the spectrum presently used for TV service, and make it available for other services.

This firm wishes to commend the FCC and industry with regard to the accomplishments made to date in the advanced television proceeding. There has been much achieved and there is a considerable amount yet to be done. A new and complex means of providing television signals is bound to generate differing opinions on how to achieve the ultimate goal, the best digital television (DTV) broadcast technology, while providing each existing viewer with continued television service from our American, free, off-the-air system. Furthermore what is known or believed today may easily change tomorrow based on new information. It is in this spirit that dLR submits its comments in the proceeding.

The primary goals for implementation of the DTV service is full accommodation and replication of existing NTSC[1] service. The FCC and Broadcast Caucus (BC) have proposed to accomplish this through the allotment of a second TV channel to certain eligible television assignments.[2] Along with the second channel is a DTV effective radiated power (ERP) intended to replicate the station's existing NTSC service at the station's same antenna height above average

[1] National Television Systems Committee
[2] Eligibility generally based on status as of October 1991.

terrain (HAAT). The information contained in the FCC's proposed DTV allotment table is based on planning factors developed and available to the FCC at the time it made the allocation studies. It is the beginning point for the DTV allotment process, not necessarily the concluding point. The FCC is to be commended for getting the DTV allotment "ball" rolling.

Subsequent to publication of the FCC's sixth FNPRM, it is apparent from industry reaction that there are differences in opinion concerning the planning factors and the proposed means to replicate existing service. With different planning factors, the proposed DTV allotment table will very likely change. It is imperative for the planning factors to be finalized in order to optimize the DTV allotment process. The following dLR comments are based on what has been proposed in the FCC's sixth FNPRM and information available at this time concerning DTV operations, with the foreknowledge that things will likely change.

It is this firm's opinion that if full accommodation and replication of existing NTSC service is the real goal for DTV, then all stations should return to their present NTSC channels for the final DTV operations. Returning to the current channel is the best means of insuring present coverage. It will involve less power, be more spectrum efficient, cause less interference, have less impact on LPTV service, and still permit the possible recapture of spectrum for other uses.

NTSC power is peak power, whereas, DTV power is average power. A "rule-of-thumb" for comparison is average power is about 25% of peak power. As is evident from a review of the FCC's proposed DTV allotment table, in-band DTV allotments have significantly lower power than the NTSC counterpart. In other words, if a station has its NTSC operation on a UHF channel and it is assigned a DTV UHF channel the DTV ERP is substantially less than the NTSC ERP. For example, the average NTSC ERP for all UHF stations which received a UHF DTV allotment is 2510 kW (34 dBk). The average UHF DTV ERP for these stations is 158.6 kW (22 dBk), or about one sixteenth the power (12 dB less).

For another in-band example from the FCC's proposed allotment table we looked at the NTSC operations on high VHF channels (7-13), which were allotted high VHF DTV channels. The average NTSC high VHF ERP is 244.4 kW (23.9 dBk) and the average DTV ERP is 5.7 kW (7.6 dBk) for these allotments.

However, out-of-band allotments involving NTSC VHF going to DTV UHF, encounter significantly higher power. This power increase results from the attempt to replicate VHF coverage. For instance, there are 270 low VHF NTSC assignments in the FCC's proposed DTV allotment table. The average NTSC ERP for these assignments is 87.4 kilowatts (kW). The average antenna HAAT is 433 meters (1420 feet). The FCC allotted high VHF DTV channels to 6 of these assignments, and UHF DTV channels to the remainder. The average DTV ERP for the 264 UHF allotments is 3521 kW.

There are 376 high VHF NTSC assignments in the FCC's proposed DTV allotment table. The average NTSC ERP for these assignments is 266 kW, and the average antenna HAAT is 433 meters (1420 feet). The FCC allotted low VHF DTV channels to 4 of these assignments, high VHF

DTV channels to 57 of the assignments, and UHF DTV channels to the remainder. For the 315 UHF DTV channels, the average ERP is 1715 kW.

The average TV station going from a low VHF channel to a UHF DTV channel will require its ERP to be increased from 87.4 kW (peak) to 3521 kW (average) in order to replicate the present coverage. The high VHF station going to a UHF DTV channel will require its ERP to be increased from 266 kW (peak) to 1715 kW (average) in order to replicate the present coverage.

From the above, it is evident that staying in-band will require less power. Going from a VHF channel to a UHF channel will require substantially more power to attempt to replicate existing service. A low VHF TV station will typically use a transmitter with a peak power rating of 20 to 25 kW for its current NTSC operation. In order to replicate its current service on a UHF DTV channel, this station will be required to employ a transmitter having a peak power rating of at least 550 kW. This is more than 20 times the station's current transmitter power rating.

In addition to the large transmitter expense, there will be significant costs for the waveguide and antenna systems to handle these large power levels. Furthermore, the operating costs for the proposed DTV facilities to replicate the current coverage will be substantially more than for the current NTSC operations.

If the stations remain on their current VHF channels for the final DTV operations after the transition, the power levels are much less. The average NTSC facilities noted above for the existing low VHF TV stations is an ERP of 87.4 kW (peak), and an antenna HAAT of 433 meters. The DTV ERP required to replicate the low VHF predicted NTSC Grade B contour with the noise limited 26.8 dBu f(50,90) contour is approximately 6.5 kW.

The average NTSC facilities noted above for the existing high VHF TV stations is an ERP of 266 kW (peak) and an antenna HAAT of 433 meters. The DTV ERP required to replicate the high VHF predicted NTSC Grade B contour with the noise limited 31.8 dBu f(50,90) contour is approximately 5.5 kW.

Not only are the power levels less for the final DTV operations being on the present channels, the present transmission line and antenna systems can be employed for the DTV operation. The only modification required will be to the transmitter system to reflect DTV instead of NTSC operation. In many cases it will be possible to modify the present transmitter.

It is the opinion of this firm that most, if not all, VHF broadcasters wish to remain on their current VHF channels for the final DTV operation. Although concerned about the impact of noise on low VHF DTV service, virtually all of the low VHF TV broad-casters communicating with this

firm have expressed the desire to remain on their current channel in lieu of being faced with the staggering cost of attempting to replicate existing service in the UHF band.

It is not practical to try and replicate superior VHF propagation characteristics with brute force UHF power. Based on the information available at this time, dLR believes the best way to fully accommodate and replicate all existing TV service is to use the existing channel. The final DTV operation on the current NTSC channel will be at significantly less power than the current NTSC operation, resulting in lower operating costs. With less power, there will be less interference on the channels, providing opportunities for improvement in service, or the addition of new or relocated stations. This method will also enable accommodation for currently ineligible assignments, plus the potential recovery of vacant non-commercial (and commercial) TV allotments. Overall, it seems to make the most sense for each station to remain on the present channel for the final DTV operation.

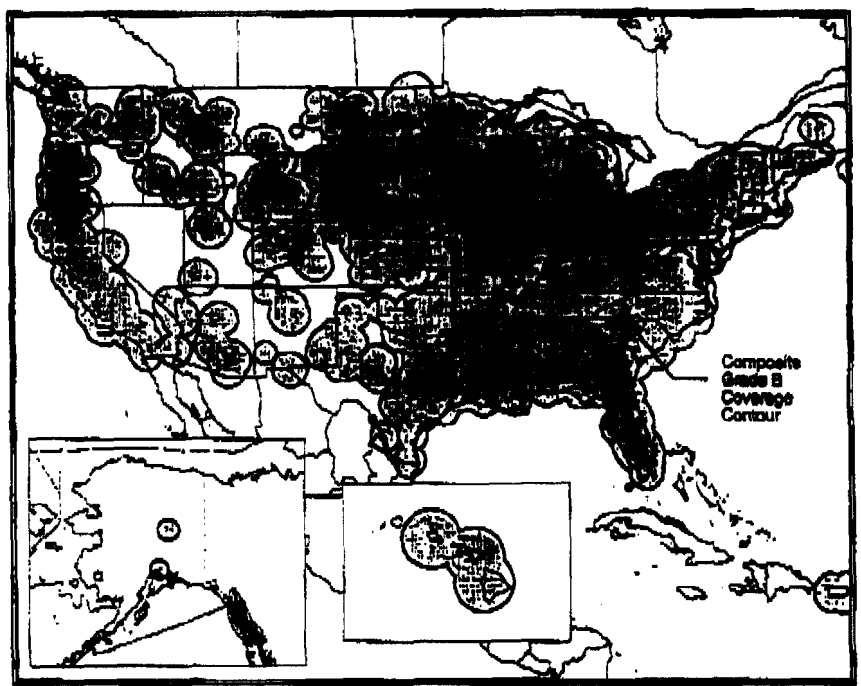

Figure 1 - Composite Licensed TV Grade B Coverage

The obvious questions are how to accommodate the transition from NTSC to DTV, and how to permit the FCC to recapture spectrum.

It is suggested that each station be assigned a second channel for DTV use during the transition period, similar to what has been proposed by the FCC in this proceeding. It is recommended that each station return to its current channel for the final DTV operation and ultimate DTV replication of its present NTSC coverage. For the transition, it is proposed that each station be authorized transmitting facilities for the proposed DTV channel based on replication of the station's current NTSC Grade A contour. The service within this NTSC contour is considered to represent the "heart" of each station's coverage.

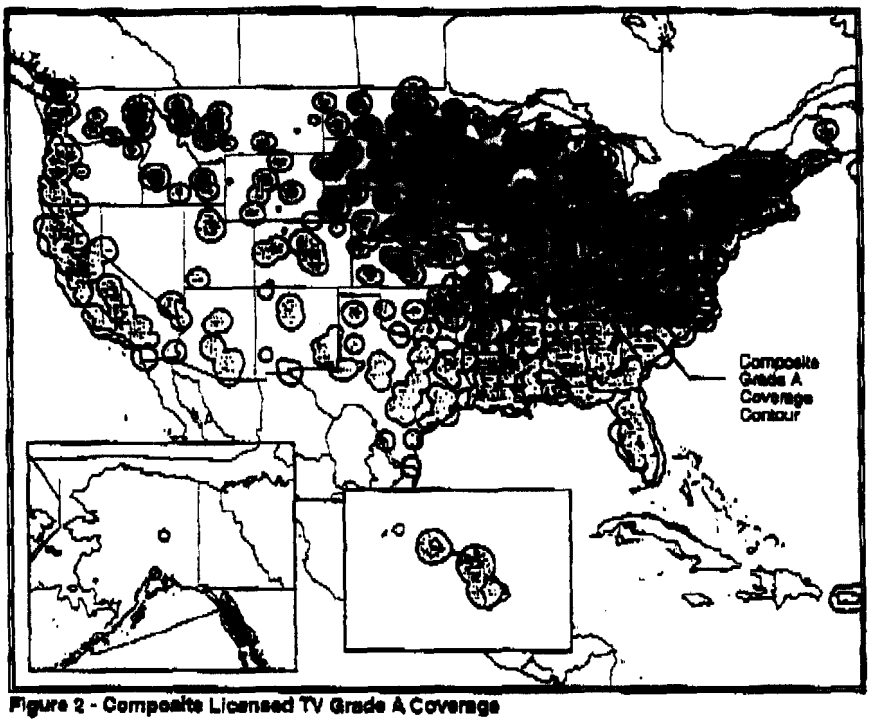

Figure 2 - Composite Licensed TV Grade A Coverage

Using the FCC's TV database, the extent of the predicted Grade A and Grade B contours were calculated for all licensed full service TV stations in the United States. The nominal ERP and antenna HAAT were used to determine the extent of the contours. Figure 1 shows the composite of all the licensed Grade B contours, and Figure 2 shows the composite of all the Grade A contours. The population (1990 Census) was estimated within the composite for each grade of service. Consideration was only given to the continental US, Alaska and Hawaii. Puerto Rico, the US Virgin Islands, Guam, and other US territories were not included. The following is a summary.

TABLE I - ESTIMATED U.S. POPULATION WITHIN TV COVERAGE REGIONS

Region	Population	Percentage of Total
Total US	248,709,873	100%
Composite Grade B	246,530,215	99.1%
Composite Grade A	236,468,230	95.1%

Approximately 99% of the US population receives a Grade B signal, and 95% of the population receives a Grade A signal. If the interim DTV operations are based on replication of the stations NTSC Grade A service, then 95% of the US population would receive DTV service for the transition.

This seems to be a very reasonable approach for the transition period. Once sufficient DTV sets are in the public's hands, and TV set converters are readily available (both NTSC-to-DTV, and DTV-to-NTSC), then the stations will convert the current NTSC channels for DTV use. The DTV loaner channel can then be returned.

As noted above, the average NTSC ERP and antenna HAAT for the 270 low VHF assignments is 87.4 kW and 433 meters. For these transmitting facilities, the predicted Grade A (68 dBu) contour extends approximately 61.3 kilometers. To replicate the low VHF NTSC f(50,50)

Grade A contour with the DTV noise limited f(50,90) 43.8 dBu contour requires a DTV ERP of only 2.5 kW in the UHF band. This is substantially less than the 3521 kW required to replicate the existing NTSC Grade B service area.

The average NTSC ERP and antenna HAAT for the 376 high VHF assignments is 266 kW and 433 meters. The predicted Grade A (71 dBu) contour for these transmitting facilities extends approximately 71.8 kilometers. To replicate the high VHF NTSC f(50,50) Grade A contour with the UHF DTV noise limited f(50,90) 43.8 dBu contour requires a DTV ERP of only 14 kW in the UHF band. This power is significantly less than the 1715 kW required to replicate the existing NTSC Grade B coverage area.

Under the above procedure, it is obvious that much lower power is possible for the commencement and orderly transition from NTSC to DTV. Hence, there will be less interference among stations, and less impact on LPTV use. In addition the cost of the equipment to be used during the interim DTV transition period will be much more reasonable. Because of the modest facilities to be used for DTV during the transition, there will be less loading impact on towers.

The above suggestion for the transition to DTV service requires retention of the low VHF band (channels 2 through 6). In its sixth FNPRM the FCC proposes to recapture the low VHF spectrum for other uses since it feels the low VHF channels are less suitable because of the high level of atmospheric and man-made noise. This firm disagrees with the FCC's assessment for DTV use of low VHF channels, based on the information available at this time.

The September 1994[3] and October 1995[4] reports on the Charlotte, North Carolina DTV field tests do not conclude that low VHF channels are unsuitable for DTV use. The VHF observations made during the Charlotte tests were on channel 6. The VHF test was conducted at one-tenth NTSC power, or an NTSC peak ERP of 10 kW. The DTV power was conducted at one-sixteenth NTSC power, or an average ERP of 0.63 kW.

The reports indicate the channel 6 tests at Charlotte experienced unanticipated interference from : impulse noise, co-channel interference, cable system interference, and non-commercial educational (NCE) FM interference. The prevalence of the impulse noise was due to 60 Hz sources (AC power). The report stated : It is believed the impulse noise problem in Charlotte is atypical (emphasis added) and may not be representative of other areas.

The field test reports indicate that satisfactory NTSC VHF reception occurred at 39.6% of the locations. Satisfactory DTV VHF reception occurred at 81.7% of the locations, more than twice the satisfactory NTSC locations. In other words, DTV service was substantially better than NTSC, even at the low power level used. The DTV system performed significantly better than the NTSC system in the presence of impulse noise. Adding 6 dB of power (i.e., DTV ERP of 2.5 kW) improved the satisfactory reception from 82% to 94% of the locations. The reports indicate that if the DTV power for low VHF is increased 10 dB (i.e., DTV ERP of 6.3 kW), as expected for low

[3] "Field Test Results of the Grand Alliance HDTV Transmission Subsystem", September 16, 1994
[4] "Results of the Terrestrial Broadcast Transmission Field Tests of the Grand Alliance HDTV System Prototype", October 16, 1995

VHF DTV operations, then the interfering sources would be substantially less effective in producing impairments.

The Charlotte report summarizes that because of the limited sample size and interference experienced, the low VHF results are inconclusive. The report suggests, and dLR agrees, that more field testing is desirable. However, the report states that DTV performs significantly better than NTSC at low VHF. It may be that more DTV power than has been initially anticipated at low VHF for DTV service will resolve the problem. The report does not conclude that low VHF is not suitable for DTV. It is believed that there is insufficient evidence for the FCC to conclude that the low VHF channels are unsuitable for DTV service.

dLR urges retention of the low VHF channels for TV use. dLR also recommends that additional field testing on the low VHF channels be conducted. Because of the superior propagation characteristics of the low VHF channels, and the potential ability to replicate existing NTSC service with an exceptional DTV service, it is believed the low VHF channels must be retained.

If for some reason, however, an existing low VHF NTSC station is already convinced that a UHF DTV channel is preferable then it can formally indicate this position to the FCC, accept its UHF DTV allotment, and state its intent to vacate the low VHF channel. We are sure there are existing UHF NTSC stations in the market willing to accept the risk of operating their DTV facilities on the low VHF channel.

With this approach for the proposed transition to DTV, high DTV power levels in the UHF band can be avoided. Less interference will be caused and received during the transition. With the improved interference performance of DTV, final DTV coverage on the existing channel will very likely be greater than current NTSC coverage. It will enable a more realistic and consistent maximum DTV ERP level for in-band assignments and future DTV development (such as 10 kW for low VHF, 30 kW for high VHF and 500 kW for UHF). It will provide more DTV allotment possibilities and enable the retention of vacant non-commercial allotments. It will have less impact on low power television (LPTV) facilities, and provide those LPTV stations which are displaced more opportunity for relocation. It will result in less risk of human exposure to radio frequency energy. It will enable the FCC to examine possibilities for relocating stations in the upper UHF band to recapture valuable spectrum. Spectrum in the upper UHF band is considered to be much more valuable to the communications industry than the low VHF spectrum. It is believed this process will be less costly for implementation of DTV because only modest (low powered) DTV facilities will be used for the interim transition. In addition, the modest DTV transition facilities will likely have much less impact on tower loading. The current NTSC transmission line and antenna systems can be employed for the final DTV operation with only modifications to the transmitter system.

In summary, dLR suggests an alternative method for transition to DTV. It disagrees with the FCC's assessment that low VHF channels are not suitable for DTV use and recommends retention of the low VHF channels (2 through 6) for TV use. dLR suggests that all stations return to their current channel for the final DTV operation, at which time full replication of existing NTSC coverage can be accomplished. It is proposed that a loaner channel for DTV use during the interim transition period be provided with transmitting facilities to replicate the station's NTSC Grade A contour.

dLR requests that the Commission consider a further extension of the Reply comment period in this proceeding not less than an additional 45 days in view of the complexity of these issues and the intervening holiday season. Also, due to the extraordinary nature of this proceeding, dLR requests that the Commission designate a formal period on which to file comments on Reply Comments.

Respectfully submitted,

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November 19, 1996

Appendix B

TECHNICAL STATEMENT

TECHNICAL STATEMENT
SUPPORTING THE REPLY COMMENTS OF
LOUISIANA TELEVISION BROADCASTING, CORP.
CHANNEL 3 OF CORPUS CHRISTI, INC.
MOBILE VIDEO TAPES, INC.

This Technical Statement has been prepared on behalf of Louisiana Television Broadcasting Corp., licensee of WBRZ, Channel 3 of Corpus Christi, Inc., licensee of KIII, and Mobile Video Tapes, Inc., licensee of KRGV-TV, collectively called "Aggrieved Parties" or "AP," in support of reply comments in the Federal Communications Commission's Sixth Further Notice of Proposed Rule Making (FNPRM) in MM Docket No. 87-268. In the FNPRM the FCC has proposed an allotment table for digital television (DTV) assignments, with associated effective radiated powers (ERP) to replicate existing coverage. The FNPRM also proposes to reclaim the spectrum presently used for low VHF television (channels 2 through 6), and make it available for other services.

The following television are owned by AP:

WBRZ, Channel 2, Baton Rouge, LA
KIII, Channel 3, Corpus Christi, TX
KRGV-TV, Channel 5, Weslaco, TX

The FCC has proposed UHF channels for the DTV operations of these stations. It has also specified a DTV ERP at the licensed antenna height above average terrain (HAAT). These proposed DTV transmitting facilities were determined on the basis of replication of the current NTSC predicted Grade B coverage. The following is a summary of the FCC's proposed allotments for these stations.

Station	NTSC Channel	NTSC ERP(kW)	Antenna HAAT(M)	DTV Channel	DTV ERP(kW)
WBRZ	2	100	515	47	3652
KIII[1]	3	100	262	43	4648
KRGV-TV	5	100	290	20	4215

The NTSC ERP is peak power, whereas, the DTV ERP is average power. A "rule of thumb" approximation for comparison is average power is 25% of peak power.

[1] There is a pending application, File No. BPCT-960723KF, which requests an increase in KIII's HAAT to 288 meters.

If replication of existing service is the real goal for DTV service, then it is believed all VHF stations should return to their present NTSC channel locations for the final DTV operations. Returning to the current channel is the best means of insuring continued existing coverage. Use of the current channel involves less power, will be more spectrum efficient, will cause less interference, will have less impact on LPTV service, and will still permit the possible recapture of spectrum for other future uses.

As is evident with the FCC's proposed DTV allotment table, inband DTV allotments require significantly lower power than the NTSC counterpart. However, out-of-band allotments, involving NTSC VHF channel relocations to DTV UHF, require significant power increases in an attempt to replicate the current VHF coverage. For instance, there are 270 low VHF (channels 2 through 6) NTSC assignments in the FCC's proposed DTV allotment table. The average NTSC ERP for these assignments is 87.4 kilowatts (kW). The average antenna HAAT is 433 meters (1420 feet). The FCC allotted high VHF DTV channels to 6 of these assignments, and UHF DTV channels to the remainder. The average DTV ERP for the 6 high VHF allotments is 17.2 kW. The average DTV ERP for the 264 UHF allotments is 3521 kW.

There are 376 high VHF (channels 7 through 13) NTSC assignments in the FCC's proposed DTV allotment

table. The average NTSC ERP for these assignments is 266 kW, and the average antenna HAAT is 433 meters (1420 feet). The FCC allotted low VHF DTV channels to 4 of these assignments, high VHF DTV channels to 57 of the assignments, and UHF DTV channels to the remainder. The average DTV ERP for the 4 low VHF allotments is 2.3 kW. The average DTV ERP for the 57 high VHF channels is 5.6 kW. For the 315 UHF DTV channels, the average ERP is 1715 kW.

The average TV station going from a low VHF channel to a UHF DTV channel will require its ERP to be increased from 87.4 kW (peak) to 3521 kW (average) to replicate present coverage. The high VHF station going to a UHF DTV channel will require its ERP to be increased from 266 kW (peak) to 1715 kW (average) to replicate present coverage. From the above, it is evident that remaining inband will require less power. Going from a VHF channel to a UHF channel will require gargantuan power to replicate existing service.

The following is the minimum transmitter peak power ratings required for the three AP stations to replicate their present NTSC coverage on the proposed DTV channels.

Station	DTV Channel	DTV ERP (kW)	Minimum Transmitter Peak Power Rating (kW)
WBRZ	47	3652	700
KIII	43	4648	875
KRGV-TV	20	4215	800

From information provided by 2 manufactures (Comark and Acrodyne) transmitter cost estimates have been made. The cost of a 240 kW transmitter (peak power rating) is approximately $1,600,000. A 300 kW transmitter would cost approximately $2,200,000; and a 600 kW transmitter would be around $4,000,000. Furthermore, 600 kW transmitters are not currently manufactured. In addition to the large transmitter costs, there will be significant costs for the waveguide and antenna system to handle these extremely large power levels. The operating costs for the proposed DTV facilities to replicate the current coverage would be astronomical as compared to the current NTSC operations.

Typical transmitter power of 120 kW is employed by many UHF stations. This size transmitter and its associated operational cost are found to be acceptable in the larger television markets. Although higher power UHF transmitters exist, up to 240 kW, they tend to be only in

the top markets.[2] If it is assumed that the AP stations employ a 120 kW transmitter capable of DTV operation and a typical antenna system, the anticipated effective radiated power of the station would be approximately 500 kW. With a DTV ERP of this magnitude, WBRZ would cover about 72 percent of its Grade B service area, KIII would cover about 64 percent of its Grade B service area and KRGV-TV would cover about 67 percent of its Grade B service area. Even assuming use of a 240 kW transmitter, Grade B replication would only improve by a small margin; 81 percent for WBRZ, 72 percent for KIII and 76 percent for KRGV-TV. Hence, with use of realizable power, coverage will be eliminated for many current viewers of these stations.

If the three AP stations remain at the current VHF channel locations for the final DTV operations after the transition, the power levels required for replication of coverage are much less. The following power levels are based on replication of the present Grade B coverage areas with the appropriate noise limited contours identified in the FNPRM.

[2] It is impractical, both from an initial capital outlay and from the continuing operating costs, for smaller market stations to employ such high power transmitters.

Station	Channel	DTV ERP (kW)
WBRZ	2	8.1
KIII	3	5.1
KRGV-TV	5	5.2

Under this approach, the present transmission line and antenna systems would be able to be employed for the DTV operation. The only modification required would be to the transmitter system to reflect DTV instead of NTSC operation. In many cases it will be possible to modify the present transmitter.

It is not practical to try and replicate the superior VHF propagation characteristics with brute force UHF power. The best way to replicate existing service is to use the existing channel location. The final DTV operation on the current NTSC channel will be at significantly less power than the current NTSC operation, resulting in lower operating costs. With less power, there will be less interference on the channels, providing opportunities for improvement in service, or the addition of new or relocated stations. Overall, it makes the most sense for each station to remain on the present channel location for the DTV operation.

The obvious question is how to accommodate the transition from NTSC to DTV. It is suggested that each station be assigned a second channel for DTV use during

station be assigned a second channel for DTV use during the transition period, similar to what has been proposed by the FCC. AP proposes to return to its current VHF channel for the final DTV operation and ultimate DTV replication of its present NTSC coverage. It proposes to employ transmitting facilities for the FCC's proposed UHF DTV channel based on replication of the station's current NTSC Grade A contour. The service within this NTSC contour is considered to represent the "heart" of each station's coverage. Once sufficient DTV sets are in the public's hands, then the stations will convert the current VHF NTSC channels for DTV use. The UHF DTV loaner channel would then be returned.

As noted above, the average NTSC ERP and antenna HAAT for the 270 low VHF assignments is 87.4 kW and 433 meters. For these transmitting facilities, the predicted Grade A (68 dBu) contour extends approximately 61.3 kilometers. To replicate the low VHF NTSC f(50,50) Grade A contour with the DTV noise limited f(50,90) 43.8 dBu contour requires a DTV ERP of only 2.5 kW in the UHF band. This is substantially less than the 3521 kW required to replicate the existing NTSC Grade B service area.

The average NTSC ERP and antenna HAAT for the 376 high VHF assignments is 266 kW and 433 meters. The predicted Grade A (71 dBu) contour for these transmitting facilities extends approximately 71.8 kilometers. To replicate the high VHF NTSC f(50,50) Grade A contour with

the UHF DTV noise limited f(50,90) 43.8 dBu contour requires a DTV ERP of only 14 kW. This power is significantly less than the 1715 kW required to replicate the existing NTSC Grade B coverage area.

Under the above proposal, it is obvious that much lower power is possible for the commencement and orderly transition from NTSC to DTV. Hence, there will be less interference among stations, and less impact on low power television (LPTV) use. In addition, the cost of the equipment to be used during the interim DTV transition period will be much more reasonable. The following is a summary of the UHF DTV operations for the three AP stations as proposed by the FCC and as suggested by AP for the transition period.

Station	NTSC Channel	Interim DTV Channel	FCC Prop. DTV ERP(kW)	Proposed Interim DTV ERP(kW)
WBRZ	2	47	3652	3
KIII	3	43	4648	2.1
KRGV-TV	5	20	4215	2.4

The above suggestion for the transition to DTV service requires retention of the low VHF band (channels 2 through 6). In its FNPRM the FCC proposes to recapture the low VHF spectrum for other uses since it feels the low VHF channels are less suitable for DTV use because of the high level of atmospheric and man-made noise. AP disagrees with the FCC's assessment for DTV use of low VHF channels.

The September 1994 and October 1995 reports on the Charlotte, North Carolina DTV field tests do not conclude that low VHF channels are unsuitable for DTV use. The VHF observations at Charlotte were made on channel 6. The VHF test was run at one-tenth NTSC power, or an NTSC peak ERP of 10 kW. The DTV power was conducted at one-sixteenth NTSC power, or an average ERP of 0.63 kW.

The reports indicate the channel 6 tests at Charlotte experienced unanticipated interference from impulse noise, co-channel interference, cable system interference, and non-commercial educational (NCE) FM interference. The prevalence of the impulse noise was due to 60 Hz sources (AC power). The report stated: "It is believed the impulse noise problem in Charlotte is atypical [emphasis added] and may not be representative of other areas."